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Employment protection legislation impacts on capital and skill composition

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Abstract:

Research and Development (R&D) expenses and Information and Communication Technology (ICT) diffusion are key factors of modern growth and competitiveness. This study proposes an original investigation of the effects of the OECD Employment Protection Legislation (EPL) indicator on four capital and three labour skill components. Grounded on a country*industry unbalanced panel data sample for 14 OECD countries and 18 industries covering the years 1988 to 2007 and relying on a difference-in-difference econometric approach, we find that a change in EPL impacts differently the type and skill composition of respectively capital and labour. Strenthening EPL lowers ICT capital and, even more severily, R&D capital relatively to non-ICT and construction capital; it also works at the disadvantage of low-skill workers relatively to high-skill workers employment. These results confirm that a strenthening of EPL can be an impediment to the organizational change and a break to the risk taking so important to capture shares of globalized markets, thus driving to more regulation harmonization. An illustrative policy simulation based on our estimates suggests that structural reforms for more labour flexibility, weakening employment protection legislation for countries where it is particularly strong, could have a favourable impact on firms' ICT and R&D investment and on the hiring of low-skill workers.

Keywords: regulation, capital, R&D, ICT, skill
JEL codes : E22, E24, O30 ; L50, O43, O47, C23

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1. Introduction

Numerous studies have been devoted to exploring the impact of labour market regulations on firms' behavior. Many of them relied on the Employment Protection Legislation (EPL) indicators of OECD assessing the procedures and costs involved in dismissing individuals or groups of workers and the procedures involved in hiring workers on fixed-term or temporary work agency contracts. Many of these studies also focused on the effects on firms' innovation as proxied by patents and on various measures of their productivity. See for instance Acharya, Baghai and Subramanian (2013); Bassanini, Nunziata and Venn (2009); Cette, Lopez and Mairesse (2016); Conti and Sulis (2016); Griffith and Macartney (2014); Micco and Pages (2006) which find a detrimental impact of labour regulations on patents, TFP level or TFP growth. Much fewer studies have investigated the impacts of labour regulations on the combination of production factors, although it is also important for anticipating the various effects of labour market reforms. In particular Research and Development (R&D) and Information and Communication Technology (ICT) investments are more and more essential determinants of economic growth, productivity and competitivity. Among these studies some have investigated the impact of labour regulations on the overall capital – labour ratio (or capital intensity), and have found apparently conficting results such as Autor *et al.* (2007), Calgagnini *et al.* (2014), Cingano *et al.* (2010 and 2014), Janiak and Wasmer (2014). Other have considered the impact of EPL on ICT capital (Aghion *et al.,* 2009; Cette and Lopez, 2012; Guerrieri *et al.,* 2011), but none, to our knowledge, on R&D capital. Appendix A provides a short review of the several cited papers investigating the impact of labour regulations on a overall, ICT capital or patents.

The originality of our study is to investigate the effects of EPL on four capital and three labour skill components, precisely construction, non-ICT, ICT and R&D capital components on the one hand, and low, medium- and high-skill labour components on the other hand. Our paper has also the advantage of being grounded on a large country-industry panel dataset of 14 OECD countries, 18 manufacturing and market service industries, over the 20 years from 1988 to 2007. It relies on the implementation of a difference-in-difference econometric approach (with country*industry and country*year interacted fixed effects). Our main estimation results show that strenthening EPL lowers ICT capital and, even more severily, R&D capital relatively to non-ICT and construction capital; it also works at the disadvantage of low-skill relatively to high-skill workers employment. These results confirm that firms consider that the strenthening of EPL involves significant adjustment costs for labour and indirectly capital, and can be an impediment to organizational change and a break to risk taking.[1] An illustrative policy simulation based on these results suggests that structural reforms lowering EPL to the "lightest labour regulation practice", defined as the level of EPL in the USA, could have in the medium-long term a favourable impact of about 30% on R&D capital intensity in average, and of about 10% on on unskilled employment in average.

[1] This interpretation is consistent with Bartelsman *et al.* (2016) results showing that high-risk industries are smaller in countries with high EPL and with Conti and Sulis (2016) findings suggesting a detrimental impact of EPL on high-technology adoption.

Our paper proceeds as follows. Section 2 explains the main estimated specification and section 3 presents the data. Section 4 shows the main econometric results, and Section 5 proposes, based on these results, a policy simulation of the impact on capital intensity of a structural reform consisting in adopting the lightest labour regulation practice observed in the USA. Section 5 concludes.

2. Main estimated specification

The Employment Protection Legislation (EPL) may impact production factor combination through observed labour costs, but also through labour adjustment costs, production factors efficiency and risk taking. In this paper, we investigate the whole impact of EPL on the different production factors, focusing on the differences of effects between factors.

We distinguish seven different production factors: ICT capital, R&D capital, non-ICT capital equipment (i.e. non-ICT and non-R&D equipment), non-residential capital construction, high, medium and low-skilled employment. We expect that EPL may influence differently the seven production factors.

Concerning capital intensity, except for R&D, we expect two opposite effects of EPL. Due to its influence on labour adjustment cost, an increase in EPL may have the same impact on capital intensity as an increase in the observed labour costs. Thus, EPL would have a positive impact on capital intensity. However, if market constraints prevent the implementation of the optimal labour organization, EPL would have a negative impact on capital intensity, particularly for ICT as the efficient use of ICT requires stronger labour reorganization and flexibility. Therefore, although we expect a positive EPL impact on non-ICT capital equipment and non-residential capital construction, our expectations on the EPL impact is ambiguous for ICT capital intensity.

Concerning the impact of EPL on R&D, it is important to note that: (i) R&D is more risky than the other assets, in terms of results, and thus requires higher labour flexibility to adapt firm production to the uncertain results of R&D; and (ii) a large proportion of R&D expenses are labour costs, so the R&D user cost may increase in line with the labour cost. These remarks suggest at once that the positive impact of EPL on R&D intensity due to labour adjustment cost would be small, whereas the negative impact from suboptimal labour reorganization would be strong. Therefore, we expect a negative EPL impact on R&D intensity.

The EPL impact on employment shares depends largely on the differences of EPL effects on labour adjustment cost between the three skill levels. We expect that the positive impact of EPL on adjustment cost should decrease with skill level. Indeed, with strict EPL it's particularly difficult for firms to adjust their low-skilled employment level in response to negative productivity shocks because low-skilled workers suffer from the highest unemployment level, so their opportunity costs to remain in low-productivity jobs are lower. In other words, as the ease to find another job increases with the skill level, the impact of EPL on the adjustment cost for high-skilled employment should be negligible. Therefore, we expect EPL to have a negative impact on the share of low-skilled employment and a positive impact on the share of high-skilled employment.

To investigate these effects of EPL on the different production factors, we estimate the following specitication (with small letters for logarithm):[2]

$$(x_f - l)_{cit} = \alpha_f - s_f.(c_f - w)_{cit} + \beta_f.\lambda_i.EPL_{ct} + \eta_{f,ci} + \eta_{f,ct} + \epsilon_{f,cit} \ \ \forall f \quad (1)$$

where *c*, *i*, *t* are the country, industry and time indices, X_f and C_f the quantity and unit user cost of production factor *f*, L total employment, *W* the average labour compensation, λ_i an industry specific characteristic (see below), EPL the OECD indicator of Employment Protection Legislation, α_f, s_f and β_f estimated coefficients, $\eta_{f,ci}$ and $\eta_{f,ci}$ fixed effects, and $\epsilon_{f,cit}$ the residual terms.[3] This specification corresponds to a difference-in-difference approach. We introduce country*industry $\eta_{f,ci}$ and country*year $\eta_{f,ct}$ fixed effects to prevent from various sources of endogeneity, such as reverse causality and omission bias which could stem from governments modifying their EPL depending on the economic situation. To identify the effects of EPL, which is collinear to country*year fixed effects, we allow EPL effects to depend on an industry specific characteristic λ_i, which in our main specification is the intensity of use of labour.[4] This difference-in-difference approach allows investigating whether the impact of EPL increases with the intensity of use of labour. The variable $\lambda_i.EPL_{ct}$ is called further EPL impact.

The above-mentioned EPL impact expectations result in the following values of the coefficient β_f: positive for the non-ICT capital equipment and non-residential capital construction intensity as well as for the share of high-skilled employment, negative for the R&D intensity and the share of low-skilled employment and ambiguous for the ICT intensity. Of course, these expectations lead to an ambiguous impact of EPL on the total capital intensity.

3. Data

2 The Online Appendix presents the introduction of this specification.

3 The ratios of production factors over total employment allow taking into account of industry sizes and comparing our results to the empirical litterature. However, we are not interested only on the effects of EPL on these capital - labour ratios but mainly on the ratios of the various capital stocks between them, so to the difference of EPL effects between the production factors (i.e. $\beta_f - \beta_f'$). In our main estimation results, relation (1) is estimated separatly for each factor, but estimation results are robust when the correlation of the residuals across equations are taken into account using the Seemingly Unrelated Regression Equation (SURE) estimator.

4 The intensity of use of labour is measured by the industry labour share over production in the USA in 2000. We use the USA values as this country exhibit the lowest EPL value in our sample, thus allowing to measure a 'natural' intensity of use. Note that our estimation results are robust when also using the industry layoff propensity suggested by Bassanini and Duval (2006).

Our study sample is an unbalanced country-industry panel dataset of 3,625 observations. It covers 14 countries (Australia, Austria, Czech Republic, Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, Spain, Sweden, the United Kingdom and the United States) and 18 manufacturing, network and service industries from 1988 to 2007.[5] Six industries (almost) do not invest in R&D and are excluded from the R&D intensity estimation sample (estimation results are robust when the estimation sample include these industries, see Appendix B). Also, the estimation sample is reduced to 3,200 observations from 1988 to 2005 when using data on wages by skill (the Online Appendix presents a detailed descriptive analysis of data).

Relation (1) estimations require data on capital stocks and their user cost, employment by skill level and a measure of EPL. We compute capital using the permanent inventory method $X_{f,t} = (1-\delta_f).X_{f,t-1} + I_{f,t-1}$, where I_f corresponds to the investment in factor *f*, using the EU-KLEMS investment data, OECD ANBERD R&D expenses and the following depreciation rates δ_f: Non-residential structures, 5%; non-ICT equipment, 10%; ICT equipment, 20%; R&D, 25%. We compute the user-cost of capital according to the Jorgenson (1963) formula: $C_{f,t} = P_{f,t-1}.(\delta_f. + \Delta ln(P_{f,t}) + r_t)$, where P_f is the investment price of factor *f* and *r* the long-term interest rate.[6] We measure total employment as the number of persons employed, using the OECD STAN database, and EU-KLEMS data on hours worked for the share of employment by skill level.

Finally, our analysis uses the OECD EPL indicator, which is the most frequently used in the empirical literature on the impact of labour market regulations on capital intensity, productivity and growth. Based on detailed information on laws, rules and market settings, this indicator measures the procedures and cost involved in dismissing individual workers with regular contracts and regulations on temporary contracts, including regulations on fixed-term and temporary work agency contracts. The scale of the OECD EPL indicator is 0-6, with 0 for the most flexible country labour market (see OECD Employment Outlook 2013 for more information). The OECD EPL indicator experienced large decreases over our sample period in some previously highly-regulated countries (see the Online Appendix).

4. Main estimation results

[5] These industries are (ISIC Rev. 3 codes in brackets): food products (15-16), textiles (17-19), wood products* (20), paper (21-22), chemicals products (23-25), non-metallic mineral products (26), metal products (27-28), machinery not elsewhere classified (29), electrical equipment (30-33), transport equipment (34-35), manufacturing not elsewhere classified (36-37), energy* (40-41), construction* (45), retail distribution*(50-52), hotels & restaurants* (55), transport & communication (60-64), banking services* (65-67) and professional services (72-74). The six industries with a `*' almost do not invest in R&D.

[6] Investment prices are from EU-KLEMS, but in order to improve comparability we have assumed, as suggested by Schreyer (2000) and have done so after in numerous studies, that for the ICT investments in hardware, software and telecommunications equipment the ratio of investment prices to the GDP prices is the same for all countries as for the USA, since the USA is the country that uses most systematically hedonic methods during the study period. Because of the lack of specific price information for R&D, we have used as a proxy the manufacturing production deflator.

Table 1 gives the main relation (1) estimate results.[7]

A separate equation is estimated for each production factor, but estimation results are robust when the correlation of the residuals across equations are taken into account using the Seemingly Unrelated Regression Equation (SURE) estimator (see Table B3 in Appendix B).

The estimated elasticity of capital intensity with respect to relative cost are always negative, as expected, and significant. These elasticity are quite similar for the capital components, within the interval -0.61 (for non-ICT equipment, column [2]) to -0.37 (for construction, column [3]), whereas they are lower (in absolute value) for the two skill components of employment: -0.23 (high-skilled, column [6]) and -0.21 (low-skilled, column [7]). In other words, the price sensitivity is higher for capital intensity than for the share of employment by skill level, maybe because of the significant inertia of human capital accumulation.

The estimated coefficients of the impact of EPL differ among factors and have the expected signs. Concerning non-ICT and non-R&D capital components (non-ICT equipment, column [2], and constructions, column [3]) they are positive and significant (but only at a 0.1 threshold for constructions), whereas concerning the two high-quality capital components they are negative, non-significant for ICT (column [4]), and significant for R&D (column [5]). These results suggest that the impact of labour regulations on the non-ICT and non-R&D capital-to-labour ratio is qualitatively similar to that of a change in the labour cost. More importantly, they suggest that labour regulations have a detrimental impact on capital quality, i.e. the share of R&D and ICT in total capital, in industries using labour intensively relatively to the other industries. Investment in high-quality capital is more risky in terms of results, than investment in lower quality capital, and firms would take this risk less often as their labour force adaptability decrease. These results are consistent with those of Conti and Sulis (2016) and of Bartelsman *et al.* (2016), which suggest a detrimental impact of EPL on high-technology adoption and on growth of high-risk industries, respectively.[8]

The estimated coefficient of the impact of EPL on the total capital stock is positive but small and non-significant (column [1]). This estimated coefficient is consistent with those obtained on the different capital components, which means that this elasticity could be positive or negative, depending on the share of high-quality capital components (ICT and R&D) in the total capital. These results are original and more detailed than the previous empirical ones from Autor *et al.* (2007) or Cingano *et al.* (2010) and (2014) which find positive or negative impacts of EPL on the capitalto-labour ratio. This difference in

[7] Table 1 does not show the estimation results for share of medium-skilled employment. We do not find any statistically significant impact of EPL on the share of medium-skilled employment, but this result is not meaningful as medium-skilled employment accounts for the majority of total employment.

[8] To illustrate the consequences of these results in terms of Total Factor Productivity (TFP), we may use a growth accounting analysis. We still assume a Cobb-Douglas production function and calibrate the value added elasticity vis-à-vis the production factors by the average factor cost shares in total cost in 2005 (these values are: 10.5% for non-ICT equipments, 5.2% for constructions, 2.6% for ICT capital and also 2.6% for R&D capital). According to this calibration and Table 1 estimation results, a one unit increase of "EPL impact" would induce a 0.6% reduction of TFP through capital composition. However, if there is R&D and/or ICT externalities, the negative impact would be stronger.

results between this and previous studies may be explained by the capital share of high-quality capital components in their estimation samples.

The estimated coefficients of the impact of EPL also differ for the two shares of employment skill levels: positive for the share of high-skilled employment (column [6]) and negative for that of low-skilled employment (column [7]). This suggests that labour regulations are particularly detrimental to low-skilled employment, which is an interesting paradox as one of the main goals of labour regulations is usually to protect low-skilled workers. These regulations seem to frighten employers, who consider that they lead to an increase in labour costs with a negative impact on low-skilled employment. From our knowledge of the literature, this result is also original. The positive impact on the share of high-skilled employment supports the idea of Janiak and Wasmer (2014) that higher labour regulations increase the capital-to-labour ratio and, due to the complementarity between capital and high-skilled workers, the share of these high-skilled workers in total employment. But our results give more detail on this channel: this added capital is not the most sophisticated one as, from higher labour regulations, the ICT capital-to-labour ratio does not significantly change and the R&D capital-to-labour ratio even decreases substantially.

Table 1
EPL impact on capital intensity ($x_f - l$)

Factor	(1) Total Cap.	(2) Non-ICT	(3) Cons.	(4) ICT	(5) R&D	(6) High-skilled	(7) Low-skilled
Relative cost	-0.449***	-0.606***	-0.369***	-0.477***	-0.474***	-0.233***	-0.212***
($c_f - w$)	[0.0310]	[0.0400]	[0.0432]	[0.0226]	[0.144]	[0.0537]	[0.0317]
EPL impact	0.0474	0.176***	0.122*	-0.0738	-1.106***	0.347***	-0.219***
($\lambda_i . EPL$)	[0.0557]	[0.0595]	[0.0642]	[0.0914]	[0.249]	[0.0682]	[0.0428]
Observations	3,625	3,625	3,625	3,625	2,537	3,200	3,200
R-squared	0.799	0.751	0.662	0.942	0.684	0.792	0.900
rmse	0.0965	0.104	0.112	0.159	0.273	0.111	0.0685

Included fixed effects: country, industry, year, country*industry and country*year.
Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1.

Different robustness checks have been carried out and are presented in Appendix B. We first analyse the sensitivity of the estimation results to the two assumptions already mentioned for Table 1: (i) the elasticity of substitution may differ between factors, which is consistent with various degrees of complementarity/substitutability between factors; and (ii) the impact of EPL depends of the intensity of the use of labour. The estimation results are robust to different alternatives to these two assumptions. Indeed, when we constrain the elasticity of substitution to a same value, notably the Cobb-Douglas unitary elasticity, as presented in Table D1, or when we use other industry characteristics, for instance the industry layoff propensity suggested by Bassanini and Duval (2006), as presented in Table D2, the coefficients of the impact of EPL are similar to Table 1 estimates.

The estimate results are also robust to various other sensitivity analyses: (i) the use of the SURE estimator (see Table D3); (ii) the change of the employment measurement in the capital intensity ratio, using medium-skilled employment instead of total employment (see Table D4); (ii) various estimate samples (see Table D5 and D6); and (iii) the removal, in the dataset, of any country and any industry (estimate result Tables can be obtained on request to the authors). Finally, we also test whether our results are robust to the introduction of the share of high-skill employment as explanatory variable for the capital intensity equations, in order to take into account of complementarities between these factors.[9] The estimated impact of high-skill employment share is positive on every capital intensity, but this effect is much more stronger for R&D. The estimated relative cost elasticity are generally higher than in Table 1 but still smaller than one, in absolute term (see Table D7). Concerning the robustness of the EPL impact, we observe reinforced effects: the positive impacts are two times higher for non-ICT and non-R&D capital components whereas the negative impact on ICT capital is now statistically significant (at a 10% threshold) and the negative impact on R&D capital increase, in absolute term, up to 1.9.

5. <u>Simulation</u>

To illustrate the meaning of our results, we compute from them and for all countries in our dataset the impact of the adoption of the US 2013 EPL level, the US being the country with the lightest level of regulation according to the OECD EPLindicator and 2013 being the last year the EPL indicator was available. The adoption of this US EPL level would require very large scale labour market structural reforms in some countries, such as France and Italy. The implementation of such reforms cannot be considered politically and socially realistic in the short-medium terms.

The impact of structural reforms is calculated at the industry level using the main estimates (given in Table 1) for our 18 sample industries, then these effects are aggregated at the national level using the 2000 US industry share in the whole economy for each factor.[10] The country level impact depends, for each variable, on the EPL gap with the US. It corresponds to a long-term impact, after dynamic adjustments not evaluated here. The results of this simulation are the following:

- The impact is always the largest in France, followed by Italy, Spain and the Czech Republic; these four countries suffer from the highest EPL level. At the other end of the scale, it is always the smallest in the UK which appears to be the least regulated country after the US.
- The capital-labour ratio would decrease from 1.4% to 8.1% for non-ICT equipment and from 0.5% to 3.0% for construction (Chart 1-A). Conversely, it would increase from 0.7% to 4.1% for ICTs (Chart 1-A) and from 9.5% to 54.1% for R&D (Chart 1-B). This large impact for R&D must be related to the fact that R&D only accounts on average for 9.7% of the capital stock in industries where R&D capital is not negligible, and 7.1% in all industries.

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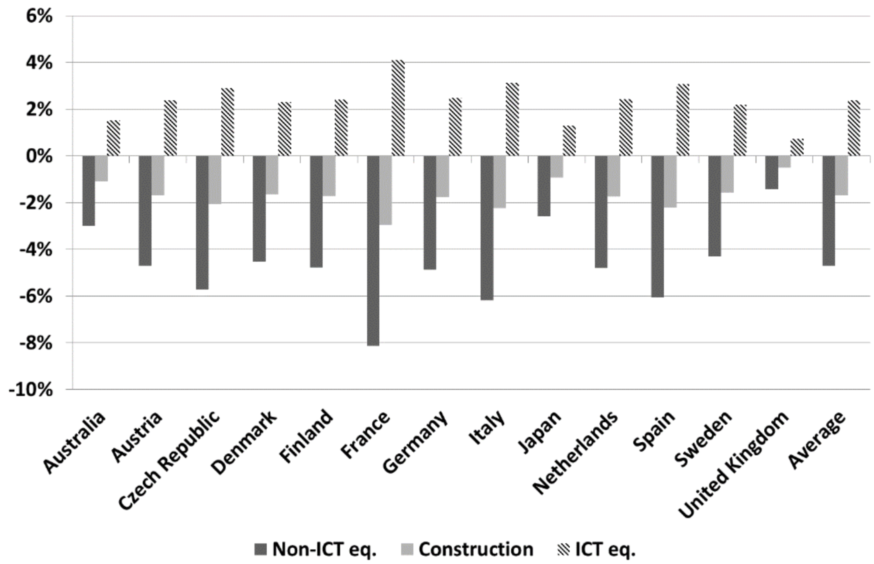
9 Ideally, we would like to introduce every production factors in each equation and use the relative prices as exclusion variables, but it would lead to multicollinearity issues. Therefore, we have choosen to focus on high-skill employment share which may be an important factor of ICT diffusion and R&D expenses.

10 To compute these effects from our difference-in-difference approch, we assume that EPL changes would have no impact on industries with employment close to 0.

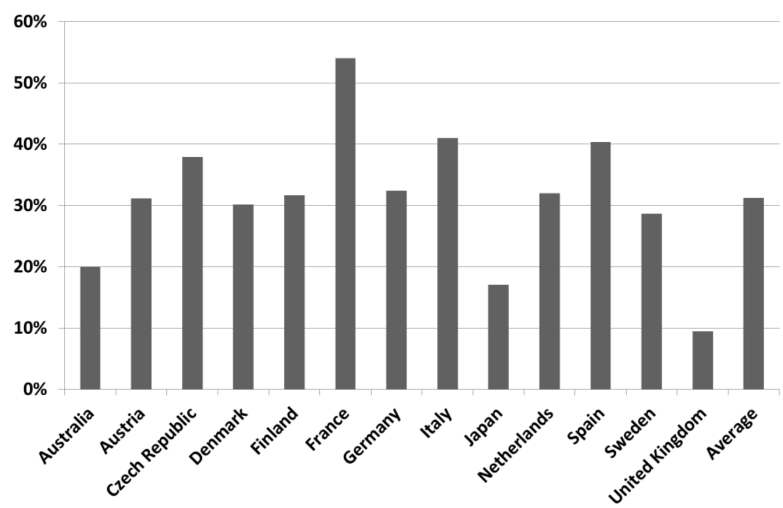
- The proportion of the share of low-skilled employment increases from 3.1% to 17.8% and the proportion of the share of high-skilled employment decreases from 3.8% to 21.9% (Chart 1-C).

Chart 1
Long-term impact of adopting the US EPL

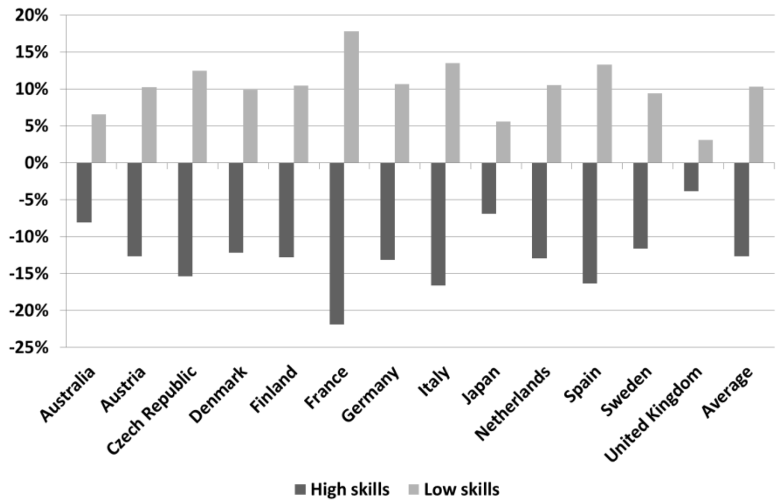
A: Non R&D capital intensity



B: R&D capital intensity



C: Employment share by skill level



6. <u>Concluding remarks</u>

The main results of our difference-in-difference approach using a large and original unbalanced country-industry panel dataset are that: i) non-ICT and non-R&D capital intensity increases overall with EPL; ii) ICT capital intensity is not significantly impacted by EPL; iii) R&D capital intensity decreases with EPL; and iv) the share of high- (low-) skilled workers in total employment increases (decreases) with EPL. These results support the fact that an increase in EPL would be considered by firms to be a rise in labour costs, with a capital-to-labour substitution impact in favour of more non-sophisticated technologies and would be particularly detrimental to unskilled workers.

It appears that labour regulations are particularly detrimental to low-skilled employment, which is an interesting paradox as one of the main goals of labour regulations is to protect low-skilled workers. These regulations seem to frighten employers, who see them as a labour cost increase with consequently a negative impact on low-skilled employment. From our knowledge of the literature, this result is original. It supports the idea by Janiak and Wasmer (2014) that higher labour regulations increase the capital-to-labour ratio and, due to the complementarity between capital and high-skilled workers, the share of the latter in total employment. But our results provide more details about this channel: this added capital is not the most sophisticated one: from higher labour regulations, the ICT capital to labour ratio does not significantly change and the R&D capital to labour ratio even decreases hugely.

From these results, the proposed simulations suggest that structural reforms that reduce EPL could have a favourable impact on R&D investment and would be helpful for unskilled employment. The simulated impact of a decrease in EPL to the US level appears large for several countries. But, this decrease in EPL would require a very ambitious reform programme in these countries, and the simulated impact is a long-term one. This confirms that the potential gains from the implementation of ambitious labour market programmes could be sizeable.

APPENDIX

Appendix A: Review of several papers investigating the impact of labour protection legislation on total and ICT capital

Several papers investigate the impact of labour regulations on a few production factors, although not on variety of them. This appendix presents briefly this literature.

The empirical literature on the impact of labour market regulations on total capital intensity provides different results. Author *et al.* (2007) use a large US establishment-level dataset (of more than 120,000 observations) and show that the adoption of unfair-dismissal protection by state courts in the US from 1970 to 1999 reduced employment flows and firm entry rates, reduced TFP and increased the capital-to-labour ratio and labour productivity. Their interpretation of these results is that an increase in employment protection corresponds to an increase in labour adjustment costs. Higher labour adjustment costs result in a decrease in TFP as well as an increase in the capital-to-labour. This capital deepening effect dominates the TFP effect and so labour productivity increases. Cingano *et al.* (2014) use a large Italian firm-level dataset (of more than 25,000 observations) and show that the implementation, in 1990, of a reform that introduced unfair-dismissal costs for firms below 15 employees had increased in these firms the capital-to-labour ratio, particularly in labour-intensive firms. But in a previous study carried out using a large panel of European firms, Cingano *et al.* (2010) had found a negative impact of EPL on the capital-to-labour ratio, and Calcagnini *et al.* (2014) also found a negative empirical relation between EPL and investment dynamics using a small European firm-level dataset (2,600 firms in 10 European countries). For Cingano *et al.* (2014), these differences in the results of their two studies "*may be reconciled by adopting the view, proposed by Janiak and Wasmer (2014)".* Indeed, Janiak and Wasmer (2014) observe at the country level an inverted U-shape relationship between employment protection legislation, measured by the usual OECD indicator of EPL , and the capital-to labour ratio. Their interpretation, using a theoretical model, is that two opposite effects are at play: a higher EPL decreases profits and consequently investment, explaining the negative correlation between EPL and capital intensity, but it also has a positive effect on human capital accumulation which is complementary to capital, explaining the positive correlation. The last effect dominates at low level of EPL and the first effect at high level of EPL. This interpretation based on complementarity is supported by Cingano *et al.* (2014): according to their estimation results, the adoption of unfair-dismissal protection had increased the share of high-tenured workers with high-specific human capital who are likely to be complementary with capital investments. These various results underline the importance of investigating simultaneously capital intensity and workers' skill composition. But in modern economies, capital quality is also essential.

Cette and Lopez (2012) propose a survey of the literature on the influence of labour market regulations on capital quality in terms of ICT or the share ICT in the capital stock. Their estimates using a country panel dataset show that labour regulations, measured by the usual EPL indicator, have a negative impact on ICT and on the share of ICT in capital, like previous studies (among others, see Aghion *et al.,* 2009, or Guerrieri *et al.,* 2011). They also show the favourable impact on ICT diffusion of post-secondary education among the working age population and the detrimental impact of product market rigidities. These results suggest that an efficient use of ICT requires a higher degree of skilled labour than in other technologies and firm reorganisations which can be constrained by strict labour market regulations.

To our knowledge, there are no studies focusing on the impact of labour market regulations on R&D spending. But some previous papers deal with the similar topic of the impact of labour market regulations on innovation measured by the patenting behaviour. Griffith and Macartney (2014) give a survey of this literature and show, from an original large dataset of big European firms, that EPL has two types of effect on innovation: a higher EPL increases job security and hence worker investment in innovative activity but, at the same time, it reduces investment in activities that are likely to require adjustment, including technologically advanced innovation.

Appendix B: Sensitivity analysis

This appendix presents the different robustness checks that have been carried out. First of all, all the estimated coefficients of relative cost differ significantly from the Cobb-Douglas unitary elasticity, which suggests that our unconstrained specification is preferable. We cannot exclude the fact that estimates of relative cost elasticities lower than one (in absolute value) could partly reflect the impact of relative cost measurement errors. Therefore, we also estimate relation (1) with an elasticity of substitution equal to -1 and the estimated coefficients of impact of EPL are robust to this constraint, as shown in Table B1. The only change is that the impact of EPL coefficient for low-skilled employment becomes non-significant (column 7) but as the coefficient remains positive and significant for high-skilled employment (column 6), a rise in the impact of EPL still increases the share of high-skilled labour relative to low-skilled employment.

Table B1
Relation (1) estimate results when the elasticity of substitution parameters are constrained to -1

Factor	(1) Total Cap.	(2) Non-ICT eq.	(3) Cons.	(4) ICT	(5) R&D	(6) High-skilled	(7) Low-skilled
Relative cost	-1	-1	-1	-1	-1	-1	-1
$(c_f - w)$	[0]	[0]	[0]	[0]	[0]	[0]	[0]
EPL impact	0.157***	0.209***	0.176***	0.0453	-1.061***	0.268***	0.0115
$(\lambda_i.EPL)$	[0.0580]	[0.0603]	[0.0662]	[0.0987]	[0.250]	[0.0705]	[0.0462]
Observations	3,625	3,625	3,625	3,625	2,537	3,200	3,200
R-squared	0.122	0.146	0.141	0.175	0.125	0.266	0.204
rmse	0.101	0.105	0.115	0.172	0.274	0.115	0.0757

Included fixed effects: country, industry, year, country*industry and country*year.
Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1.

Another question relates to the measure of the industry-specific characteristic (λ_i), which is equal to the industry *i* labour share in the USA in 2000 for Table 1 estimates. Alternatively, we can also test whether EPL is more binding in industries which require more labour flexibility. As suggested by Bassanini and Duval (2006), we use the layoff propensity as an indicator of the labour flexibility need. This indicator appears to be quite volatile over time, and for this reason we measure the industry-specific characteristic (λ_i), by a simple fixed effect: λ_i = 1 in the half industries with the highest layoff propensity in the US in 2000, and λ_i = 0 in other industries.[11] The estimate results appear robust to this choice, as shown in Table B2. The only changes are that the EPL impact coefficient becomes non-significant for construction (column 3) and low-skilled (column 7) but we retain the contrast between a positive and significant EPL impact coefficient for non-ICT equipment (column 2), a non-significant coefficient for ICT (column 4) and a negative and significant coefficient for R&D (column 5). We also find that a rise in the impact of EPL increases the share of high-skill labour (column 6).

[11] The high-layoff propensity industries (with $\lambda_i = 1$) are: textiles (17-19), wood products (20), non-metallic mineral products (26), metal products (27-28), machinery not elsewhere classified (29), electrical equipment (30-33), manufacturing not elsewhere classified (36-37), construction (45), transport & communication (60-64).

Table B2
Relation (1) estimate results when the industry characteristic (λ_i) is the layoff propensity

Factor	(1) Total Cap.	(2) Non-ICT eq.	(3) Cons.	(4) ICT	(5) R&D	(6) High-skilled	(7) Low-skilled
Relative cost	-0.446***	-0.604***	-0.364***	-0.476***	-0.476***	-0.258***	-0.247***
$(c_f - w)$	[0.0308]	[0.0400]	[0.0432]	[0.0228]	[0.145]	[0.0537]	[0.0311]
EPL impact	0.0220**	0.0329***	-0.00369	0.0128	-0.0953**	0.0270**	-0.00367
$(\lambda_i . EPL)$	[0.0105]	[0.0112]	[0.0121]	[0.0174]	[0.0372]	[0.0129]	[0.00795]
Observations	3,625	3,625	3,625	3,625	2,537	3,200	3,200
R-squared	0.799	0.751	0.662	0.942	0.682	0.791	0.899
rmse	0.0965	0.104	0.112	0.159	0.274	0.112	0.0688

Included fixed effects: country, industry, year, country*industry and country*year.
Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1.
The industry characteristic λ_i equal 1 for industries with high layoff propensities (ISIC code Rev. 3: 17-19, 20, 26, 27-28, 29, 30-33, 36-37, 45, 60-64) and 0 otherwise.

Estimate results are also robust to several other sensitivity analyses, notably the use of the SURE estimator taking into account the correlation of the residuals across equations (see Table B3) or the change of the measurement in the capital intensity ratio, using medium-skilled employment instead of total employment (see Table B4). Estimate results presented in Table 1 use specific estimate samples for R&D intensity, column (5), and for the share of employment by skill level, column (6) and (7). For R&D intensity, industries that almost do not invest in R&D are excluded, but Table B5 shows that the negative impact of the relative cost and EPL are robust to the inclusion of all the industries in the estimate sample. For skills, the estimate samples are smaller than for the other assets because of data availability. When this smaller estimate sample is used for the other assets, the estimate results are quite similar, as shown in Table B6. The only exception is that the impact of EPL on construction capital would be smaller and no longer statistically significant. Finally, estimate results are also robust to the removal, in the dataset, of any country and any industry (the corresponding estimate result Tables can be obtained on request to the authors).

Table B3
Relation (1) estimate using the SURE estimation method

Factor	(1) Non-ICT eq.	(2) Cons.	(3) ICT	(4) R&D
Relative cost	-0.489***	-0.257***	-0.383***	-0.820***
$(c_f - w)$	[0.0390]	[0.0434]	[0.0224]	[0.138]
EPL impact	0.140**	0.0621	-0.0919	-1.674***
$(\lambda_i . EPL)$	[0.0647]	[0.0661]	[0.0984]	[0.205]
Observations	2,558			
Log-likelihood	13 851			

Included fixed effects: country, industry, year, country*industry and country*year.

Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1.

Table B4
Relation (1) estimate results when the reference is medium-skilled employment ($x_f - l_M$)

Factor	(1) Total Cap.	(2) Non-ICT eq.	(3) Cons.	(4) ICT	(5) R&D	(6) High-skilled	(7) Low-skilled
Relative cost	-0.346***	-0.468***	-0.259***	-0.435***	-0.166	0.0231	-0.258***
($c_f - w$)	[0.0378]	[0.0472]	[0.0458]	[0.0239]	[0.147]	[0.0490]	[0.0330]
EPL impact	0.0601	0.214***	0.102	-0.0598	-1.221***	0.420***	-0.161***
($\lambda_i.EPL$)	[0.0646]	[0.0684]	[0.0664]	[0.0956]	[0.249]	[0.0719]	[0.0480]
Observations	3,200	3,200	3,200	3,200	2,247	3,200	3,200
R-squared	0.626	0.562	0.502	0.927	0.598	0.653	0.923
rmse	0.105	0.112	0.109	0.157	0.258	0.117	0.0772

Included fixed effects: country, industry, year, country*industry and country*year.
Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1.

Table B5
Relation (1) estimate results for R&D intensities when all industries are included in the sample

Factor Sample	(1) R&D R&D industries	(2) All industries
Relative cost	-0.474***	-0.761***
($c_f - w$)	[0.144]	[0.143]
EPL impact	-1.106***	-1.956***
($\lambda_i.EPL$)	[0.249]	[0.215]
Observations	2,537	3,555
R-squared	0.684	0.562
rmse	0.273	0.363

Included fixed effects: country, industry, year, country*industry and country*year.
Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1.

Table B6
Relation (1) estimate results when the estimation samples is reduced to data available on skills

Factor	(1) Total Cap.	(2) Non-ICT eq.	(3) Cons.	(4) ICT	(5) R&D	(6) High-skilled	(7) Low-skilled
Relative cost	-0.457***	-0.586***	-0.364***	-0.438***	-0.402***	-0.233***	-0.212***
($c_f - w$)	[0.0331]	[0.0424]	[0.0445]	[0.0237]	[0.149]	[0.0537]	[0.0317]
EPL impact	0.0363	0.180***	0.0657	-0.103	-1.019***	0.347***	-0.219***
($\lambda_i.EPL$)	[0.0559]	[0.0605]	[0.0636]	[0.0938]	[0.247]	[0.0682]	[0.0428]
Observations	3,200	3,200	3,200	3,200	2,247	3,200	3,200
R-squared	0.801	0.748	0.685	0.940	0.681	0.792	0.900
rmse	0.0910	0.0990	0.104	0.154	0.256	0.111	0.0685

Included fixed effects: country, industry, year, country*industry and country*year.
Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1.

Our main specifications doesn’t take into account production factors complementarity. All factors may have some degree of complementarity, but because of multicollinearity we investigate in Table B7 only the impact of high-skill employment share on capital intensity, which may be an important factor of ICT diffusion and R&D expenses. We use the Arrelano and Bond (1991) General Method of Moment (GMM) in difference method to deal withpotential endogeneity of the share of high-skill employment and of the relative costs. The estimated relative cost elasticity are generally higher than in Table 1, in absolute value, but they are still smaller than unity. There is a positive impact of high skill employment share on every capital intensity, but this effect is much more stronger for R&D. Mainly, this specification reinforces the effects of EPL on capital intensity: the positive impacts are two times higher for non-ICT and non-R&D capital components whereas the negative impact on ICT capital is now statistically significant (for a 10% threshold) and the negative impact on R&D capital increase up to -1.9.

Table B7

Relation (1) estimate results introducing High skilled employment share as explanatory variable

Estimator: Arrellano and Bond (1991) GMM in difference

Factor	(1) Total Cap.	(2) Non-ICT	(3) Cons.	(4) ICT	(5) R&D
Relative cost	-0.906***	-0.976***	-0.504***	-0.495***	-0.837***
$(c_f - w)$	[0.0275]	[0.0284]	[0.0257]	[0.0148]	[0.0703]
High skilled	0.0968***	0.162***	0.150***	0.106***	0.441***
emp. share	[0.0102]	[0.0102]	[0.00921]	[0.0159]	[0.0240]
EPL impact	0.163***	0.389***	0.295***	-0.113*	-1.910***
$(\lambda_i.EPL)$	[0.0407]	[0.0399]	[0.0367]	[0.0663]	[0.130]
	-0.906***	-0.976***	-0.504***	-0.495***	-0.837***
Observations	[0.0275]	[0.0284]	[0.0257]	[0.0148]	[0.0703]

Included fixed effects: country, industry, year, country*industry and country*year.
Robust Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1.

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ONLINE APPENDIX

Employment protection legislation impacts on capital and skill composition

Gilbert Cette, Jimmy Lopez and Jacques Mairesse

Online Appendix A: The model

The estimated specifications of the Employment Protection Legislation (EPL) impact on production factor combination are derived from firm profit maximization, assuming perfect markets for products and capital but search frictions on the labour market. We distinguish seven different production factors: ICT capital, R&D capital, non-ICT capital equipment (i.e. non-ICT and non-R&D equipment), non-residential capital construction, high, medium and low -skilled employment. We assume a Constant Elasticity of Substitution (CES) production function mobilizing these seven factors (individual and time indices are omitted in order to lighten the equations):

$$Q = A.\left[\sum_f \left(\theta_f^{1/s}.X_f^{\frac{s-1}{s}}\right)\right]^{\frac{s}{s-1}}$$

Where *Q* is the value added, *A* the disembodied technical change, *s* the elasticity of substitution, X_f and θ_f the quantity and factor share coefficient (or factor efficiency) of production factor *f*.

Our profit function introduces the labour adjustment cost:

$$\pi = P.Q - \sum_f \left(C_f X_f + \mu_f\right)$$

Where π is the firm profit, *P* the value added price, C_f the (observed) unit user cost of production factor f and μ_f its adjustment cost. We assume search frictions on the labour markets such that the adjustment cost $\mu_f \neq 0$ is growing with the level of employment.[1]

Assuming perfect product markets, the first order conditions of profit maximization lead to:

$$\frac{C_f^*.X_f}{P.Q} = \theta_f.A^{s-1}.\left(\frac{C_f^*}{P}\right)^{-(s-1)} \forall f \quad \Rightarrow \quad \frac{X_f}{X_{f'}} = \frac{\theta_f}{\theta_{f'}}.\left(\frac{C_f^*}{C_{f'}^*}\right)^{-s} \quad \forall f, f'$$

Where C_f^* is the marginal unit cost of factor *f*, therefore $C_f^* = C_f + \frac{\partial \mu_f}{\partial X_f}$.

The intensity of use of a production factor *f* relatively to another factor *f'* depends on their relative efficiency ($\theta_f/\theta_{f'}$) and marginal costs ($C_f^*/C_{f'}^*$). Our main estimated specifications focus on the intensity of use of the production factors relatively to total employment, i.e. the capital intensity (or

[1] We also assume the concavity of the CES production function and the convexity of the adjustment cost function in order to verify second order conditions of firm profit maximization.

capital-labour ratio) of each capital factor and employment share by skill level. Thus, our relations of interest are (with small letters for logarithms):

$$\left(x_f - l\right) = ln\left(\theta_f/\theta_L\right) - s.\left(c_f - w\right) - s.ln\left(\frac{\partial\mu_f}{\partial X_f}\Big/\frac{\partial\mu_L}{\partial L}\right)\ \forall f$$

With *L* total employment, *W* the average labour compensation and θ_L the average labour efficiency.

Production factor efficiency θ_f and adjustment cost μ_f are unobserved, but Employment Protection Legislation (EPL) may influence these factors as well as observed labour costs C_f, thus impacting capital intensity and employment share. An increase of EPL, i.e. an increase of the constraints on hiring and firing, may influence differently the seven production factors through these three channels.

In order to estimate these effects of EPL on capital intensity and employment share, we assume linear relationships of EPL with the logarithm of marginal labour adjustment cost $(\partial\mu_f/\partial X_f)$ and factor efficiency (θ_f). Then, we substitute EPL for these unobserved factors into our relations of interest:

$$\begin{cases} ln\left(\theta_f\right) = \varphi_f + \rho_f.EPL + u_f \\ ln\left(\partial\mu_f/\partial X_f\right) = \phi_f + \zeta_f.EPL + v_f \end{cases} \Rightarrow \quad \left(x_f - l\right) = \alpha_f - s.\left(c_f - w\right) + \beta.EPL + \delta_f$$

With φ_f, ϕ_f and α_f constant terms, u_f, v_f and δ_f residual terms. We assume $\zeta_f = 0$ for the capital stocks.

We use a difference-in-difference approach to estimate the effects of EPL. We introduce country*industry and country*year fixed effects to prevent from various sources of endogeneity, such as reverse causality and omission bias which could stem from governments modifying their EPL depending on the economic situation. To identify the effects of EPL, which is collinear to country*year fixed effects, we allows EPL effects to depend on the intensity of use of labour. This approach allows investigating whether the impact of EPL increases with the intensity of use of labour. This estimation strategy leads to the estimated specifications:

$$\left(x_f - l\right)_{cit} = \alpha_f - s.\left(c_f - w\right)_{cit} + \beta_f.\lambda_i.EPL_{ct} + \eta_{f,ci} + \eta_{f,ct} + \epsilon_{f,cit}\ \ \forall f$$

Where *c*, *i*, *t* are the country, industry and time indices, λ_i the "natural" industry *i* labour share, EPL the OECD indicator of Employment Protection Legislation (see next section for more information), $\eta_{f,ci}$ and $\eta_{f,ci}$ the fixed effects, and $\epsilon_{f,cit}$ the residual terms. The variable $\lambda_i.EPL_{ct}$ is called further EPL impact.

Contrary to the CES production function presented in this simple model, the estimated specification assume that the elasticity of substitution may differ between factors, which is consistent with various degrees of complementarity/substitutability between factors, notably a possible complementarity between high-skilled workers and capital (see Appendix B for robustness to this assumption).

Online Appendix B: Descriptive analysis

Table B1 and B2 present means, standard-errors and the main quantiles of the distribution of our principal variables in level and in growth respectively, while Chart B1 to B4 present country sample averages of our main variables, showing large country differences.[2]

Table B1
Summary of the main variables – level

Statistics		Mean	Std. err.	D1	Q1	Median	Q3	D9	Obs
Capital intensity	Total capital	13.658	19.848	3.010	4.650	7.740	13.137	22.760	3625
	Non-ICT eq.	5.558	6.382	1.463	2.229	3.832	6.043	9.844	3625
	Cons.	6.653	14.422	0.869	1.541	2.560	4.756	9.607	3625
	ICT	0.605	0.810	0.072	0.139	0.299	0.698	1.598	3625
	R&D	1.152	1.987	0.046	0.109	0.341	1.196	3.599	2537
Empl. Share	High-skilled	0.110	0.093	0.021	0.044	0.077	0.151	0.247	3200
	Med.-skilled	0.625	0.185	0.353	0.517	0.642	0.723	0.856	3200
	Low-skilled	0.265	0.183	0.047	0.134	0.239	0.351	0.517	3200
Relative cost	Total capital	0.057	0.023	0.033	0.041	0.053	0.068	0.088	3625
	Non-ICT eq.	0.059	0.029	0.032	0.041	0.053	0.069	0.092	3625
	Cons.	0.035	0.017	0.019	0.024	0.032	0.043	0.056	3625
	ICT	0.199	0.157	0.068	0.093	0.149	0.254	0.392	3625
	R&D	0.110	0.040	0.069	0.083	0.103	0.127	0.162	2537
	High-skilled	1.608	0.340	1.246	1.385	1.569	1.799	2.039	3200
	Med.-skilled	0.991	0.084	0.901	0.946	0.997	1.039	1.089	3200
	Low-skilled	0.769	0.145	0.606	0.702	0.779	0.873	0.923	3200
EPL impact		0.589	0.346	0.110	0.344	0.563	0.794	1.039	3625

The total capital mean differs from the sum of the different asset means because the R&D mean is calculated on the subsample of industries investing significantly in R&D.

Table B2
Summary of the main variables – growth

Statistics		Mean	Std. err.	D1	Q1	Median	Q3	D9	Obs
Capital intensity	Total capital	3.32%	4.36%	-1.43%	0.56%	2.84%	5.59%	8.57%	3625
	Non-ICT eq.	3.03%	4.69%	-2.28%	0.03%	2.64%	5.57%	8.78%	3625
	Cons.	2.26%	4.86%	-3.10%	-0.72%	1.75%	4.73%	8.06%	3625
	ICT	11.10%	8.54%	1.62%	5.70%	10.21%	15.34%	21.61%	3625
	R&D	7.78%	9.83%	-2.04%	2.23%	6.51%	12.03%	19.14%	2537
Empl. share	High-skilled	3.82%	9.35%	-3.62%	0.24%	3.17%	6.97%	13.06%	3200
	Med.-skilled	1.07%	3.00%	-1.19%	-0.15%	0.65%	1.84%	3.59%	3200
	Low-skilled	-3.60%	6.73%	-9.26%	-6.09%	-3.27%	-1.02%	1.62%	3200
Relative cost	Total capital	-3.86%	4.30%	-9.13%	-6.34%	-3.65%	-1.30%	1.02%	3625
	Non-ICT eq.	-3.92%	4.32%	-9.38%	-6.51%	-3.78%	-1.24%	1.31%	3625
	Cons.	-4.58%	9.59%	-12.19%	-8.11%	-4.33%	-0.99%	2.93%	3625
	ICT	-10.05%	9.50%	-19.65%	-14.26%	-9.58%	-5.84%	-1.75%	3625
	R&D	-3.29%	3.82%	-8.03%	-5.53%	-3.01%	-1.07%	0.90%	2537
	High-skilled	-0.45%	3.72%	-4.07%	-1.90%	-0.46%	0.95%	2.96%	3200
	Med.-skilled	-0.33%	1.40%	-1.62%	-0.79%	-0.20%	0.17%	0.92%	3200
	Low-skilled	-0.85%	3.94%	-4.14%	-1.66%	-0.45%	0.41%	1.93%	3200
EPL impact		-0.81%	4.01%	0.00%	0.00%	0.00%	0.00%	0.00%	3625

[2] As first years and the last year observations are not always available, these charts present the values from 1994 to 2006 to ensure country comparability.

Chart B1

Non-ICT and non R&D capital intensity – country sample average

(thousands of constant 2000 US $ per worker)

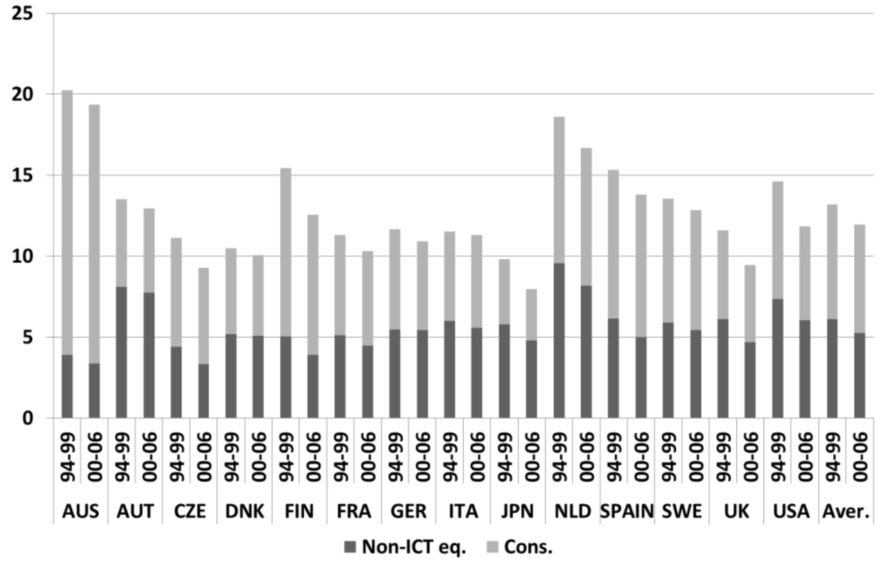


Chart B2

ICT and R&D capital intensity – country sample average

(thousands of constant 2000 US $ per worker)

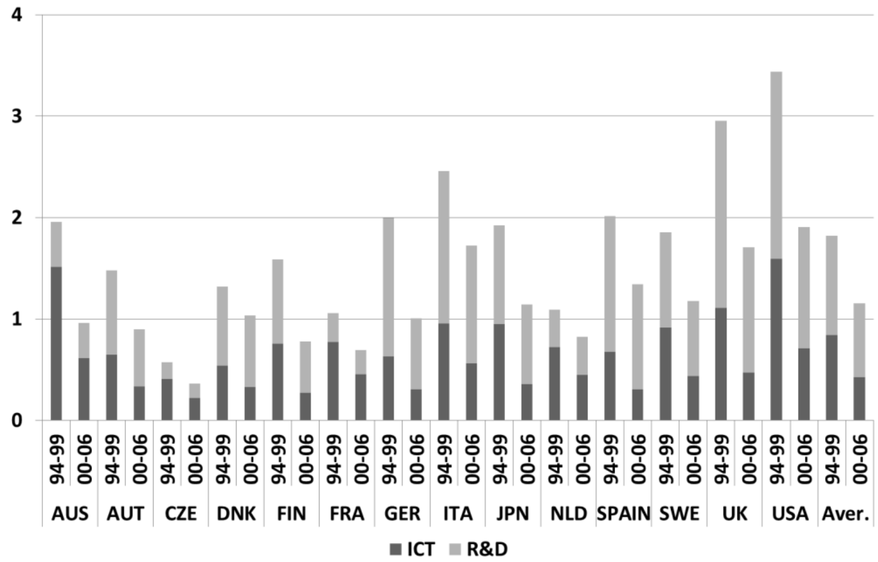


Chart B3
Employment share by skill level – country sample average

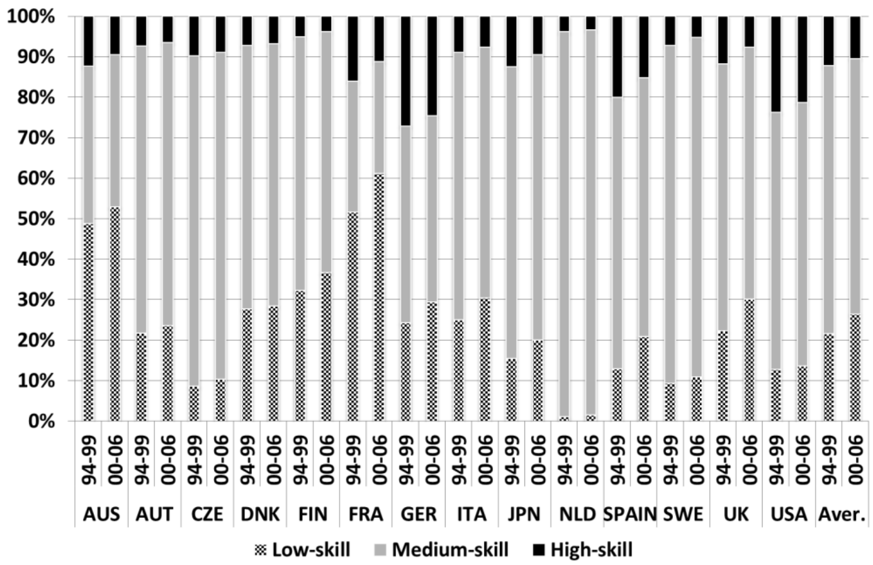
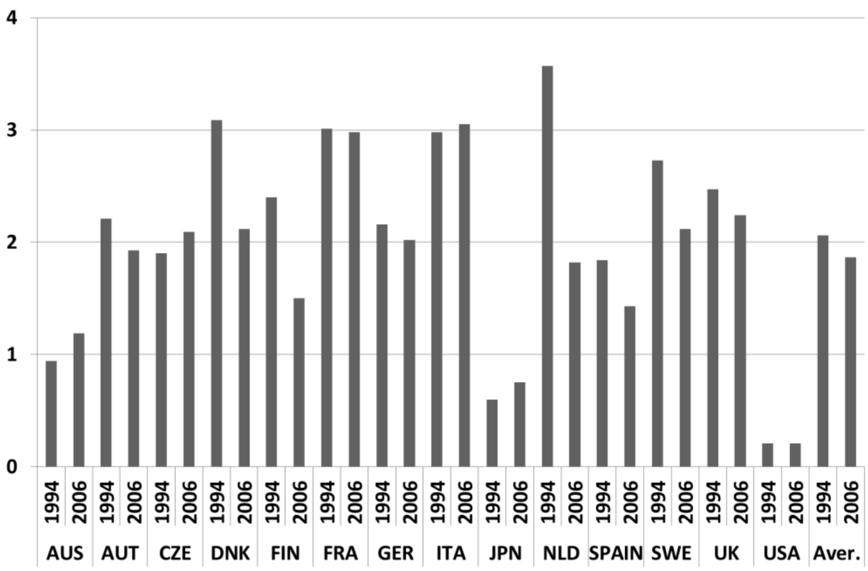


Chart B4
OECD Employment Protection Legislation indicator (EPL)
(scale 0-6, 0 for the most flexible country labour market)



As regards hours worked, the share of medium-skilled employment is on average the largest, i.e. more than 60%, whereas the average share of high-skilled employment is only 11% (Table B1). But these shares differ significantly across countries: the higher proportions are observed (on average over the 2000-2006 period) in the US (21%) and in Germany (25%) (Chart B3). It is also interesting to note the large decreases in the OECD EPL indicator from 1994 to 2006 in some previously highly-regulated countries, such as Denmark, Finland and Netherlands (Chart B4). In 2006, the level of labour market regulations (EPL) is the lowest in the US and the highest in France and Italy.

Table B3 presents the variance analysis of equation (1) variables. It shows that for most of our variables a large part of their variances is accounted for by the fixed effects. Apart from the EPL, the three single fixed effects (country, industry and years) together explain at least 64% of the variability of each variable, and even more than 90% for the capital intensity indicators (column [1]). And the three potential crossed fixed effects (country*industry, country*year, industry*year) explain at least 76% of the residual variability, and even often more than 90%. Therefore, our main specification does not introduce the industry*year fixed effects, but includes the country*industry, country*year fixed effects in order to prevent various sources of endogeneity.

Table B3

Variance analysis of the estimate variables

		First step R^2	Second step R^2			
Fixed effects:		[1] country, industry, year	[2] country*indus.	[3] country*indus., country*year	[4] country*indus., country*year, industry*year	Obs.
Capital intensity	Total capital	0.9743	0.8510	0.8935	0.9295	3625
	Non-ICT eq.	0.9635	0.8766	0.9132	0.9350	3625
	Cons.	0.9596	0.8818	0.9205	0.9470	3625
	ICT	0.9550	0.7865	0.8692	0.8933	3625
	R&D	0.9225	0.9210	0.9300	0.9517	2537
Empl. share	High-skilled	0.8602	0.8518	0.9081	0.9299	3200
	Med.-skilled	0.8853	0.6961	0.8994	0.9397	3200
	Low-skilled	0.9363	0.8472	0.9453	0.9563	3200
Relative cost	Total capital	0.8508	0.7280	0.8842	0.9064	3625
	Non-ICT eq.	0.8683	0.6916	0.9194	0.9359	3625
	Cons.	0.8112	0.4199	0.9522	0.9620	3625
	ICT	0.9030	0.5087	0.6912	0.7686	3625
	R&D	0.8716	0.9098	0.9709	0.9768	2537
	High-skilled	0.7824	0.7208	0.8534	0.8714	3200
	Med.-skilled	0.7875	0.7929	0.8541	0.8723	3200
	Low-skilled	0.6478	0.7864	0.9350	0.9426	3200
EPL impact		0.0207	0.8870	0.8895	0.9324	3625

This Table summarises the results of an analysis of variance for all the variables in our analysis in terms of separate country, industry and year effects as well as a sequence of two-way interacted effects. Column [1] documents the variability of the variables lost in terms of "first step" R^2 when we include in the regressions of our model the three one-way fixed effects separately, as a basic control for the usual sources of specification errors. The three following columns [2], [3] and [4] document what is the additional variability lost (within the first step residual variability) in terms of "second step" R^2 when we also include interacted two-way effects, in order to control for other potential sources of specification errors.